

WE CLAIM:

1. A protein derived from an enterically transmitted non-A/non-B viral hepatitis agent whose genome contains a region which is homologous to a coding region of the 1.33 kb DNA EcoRI insert present in plasmid pTZKF1(ET1.1) carried in E. coli strain BB4 and having ATCC deposit no. 67717.

10 2. The protein of claim 1, which is encoded by a complete coding region within said 1.33 kb EcoRI insert.

15 3. A recombinant protein derived from an enterically transmitted nonA/nonB viral hepatitis agent whose genome contains a region which is homologous to a coding region of a DNA molecule having a first sequence (SEQ ID NO.1):

20	AGACCTGTCC CTGTTGCAGC TGTTCTACCA CCCTGCCCG AGCTCGAACAA GGGCCTTCTC	60
	TACCTGCCCG AGGAGCTCAC CACCTGTGAT AGTGTGTAACATTGAATT AACAGACATT	120
	GTGCACTGCC GCATGGCCGC CCCGAGCCAG CGCAAGGCCG TGCTGTCCAC ACTCGTGGC	180
25	CGCTACGGCG GTCGCACAAA GCTCTACAAAT GCTTCCACT CTGATGTTG CGACTCTCTC	240
	GCCCCGTTTA TCCCGGCCAT TGGCCCCGTA CAGGTTACAA CTTGTGAATT GTACGAGCTA	300
	GTGGAGGCCA TGGTCGAGAA GGGCCAGGAT GGCTCCGCCG TCCTTGAGCT TGATCTTGC	360
30	AACCGTGACG TGTCCAGGAT CACCTCTTC CAGAAAGATT GTAACAAGTT CACCACAGGT	420
	GAGACCATTG CCCATGGTAA AGTGGGCCAG GGCATCTCGG CCTGGAGCAA GACCTCTGC	480
	GCCCTTTG GCCCTGGTT CCCGCTATT GAGAAGGCTA TTCTGGCCCT GCTCCCTCAG	540
35	GGTGTGTTT ACGGTGATGC CTTGATGAC ACCGTCTCT CGGCGGCTGT GGCCGCAGCA	600
	AAGGCATCCA TGGTGTGTTGA GAATGACTTT TCTGAGTTG ACTCCACCCA GAATAACTTT	660
40	TCTCTGGTC TAGAGTGTGC TATTATGGAG GAGTGTGGGA TGCCGCAGTG GCTCATCCGC	720
	CTGTATCACC TTATAAGGTC TGCGTGGATC TTGCAGGCC CGAAGGAGTC TCTGCGAGGG	780
45	TTTTGGAAGA AACACTCCGG TGAGCCGGC ACTCTTCTAT GGAATACTGT CTGGAATATG	840
	GCCGTTATTA CCCACTGTTA TGACTTCCGC GATTTTCAGG TGGCTGCCTT TAAAGGTGAT	900

	GATTGATAG TGCTTGCAG TGAGTATCGT CAGAGTCCAG GAGCTGCTGT CCTGATGCC	960
5	GGCTGTGGCT TGAAGTTGAA GGTAGATTTC CGCCCGATCG GTTTGTATGC AGGTGTTGTG	1020
	GTGGCCCCCG GCCTTGGCGC GCTCCCTGAT GTTGTGCGCT TCGCCGGCCG GCTTACCGAG	1080
	AAGAATTGGG GCCCTGGCCC TGAGCAGGGCG GAGCAGCTCC GCCTCGCTGT TAGTGATTTC	1140
10	CTCCGCAAGC TCACGAATGT AGCTCAGATG TGTGTGGATG TTGTTTCCCG TGTTTATGGG	1200
	GTTTCCCTG GACTCGTTCA TAACCTGATT GGCACTGCTAC AGGCTGTTGC TGATGGCAAG	1260
	GCACATTCA CTGAGTCAGT AAAACCAAGTG CTCGA	1295
15	a second sequence (SEQ ID NO.5) :	
	TCGAGCACTG GTTTACTGA CTCAGTAAA TGTGCCTTGC CATCAGCAAC AGCCTGTAGC	60
20	ATGCCAATCA GGTTATGAAC GAGTCCAGGG GAAACCCAT AAACACGGGA AACAAACATCC	120
	ACACACATCT GAGCTACATT CGTGAGCTTG CGGAGGAAAT CACTAACAGC GAGGCCGGAGC	180
	TGCTCCGCC GCTCAGGGCC AGGGCCCCAA TTCTTCTCGG TAAGCCGGCC GGCGAAGCGC	240
25	ACAACATCAG GGAGCGGCC AAGGCCGGG GCCACCACAA CACCTGCATA CAAACCGATC	300
	GGGCGGAAAT CTACCTCAA CTTCAAGCCA CAGCCGGCGA TCAGGACAGC AGCTCCTGGA	360
30	CTCTGACGAT ACTCACTGCA AAGCACTATC GAATCATCAC CTTAAAGGC AGCCACCTGA	420
	AAATCGCGGA AGTCATAACA GTGGGTAATA ACGGCCATAT TCCAGACAGT ATTCCATAGA	480
	AGAGTGCCGG GCTCACCGGA GTGTTCTTC CAAAACCTC GCAGAGACTC CTTCGGGGCC	540
35	TGCAAGATCC ACGCAGACCT TATAAGGTGA TACAGGCCGA TGAGCCACTG CGGCATCCCA	600
	CACTCCTCCA TAATAGCACA CTCTAGACCC AGAGAAAAGT TATTCTGGGT GGAGTCAAAC	660
	TCAGAAAAGT CATTCTAAA CACCATGGAT GCCTTGCTG CGGCCACAGC CGCCGAGAAG	720
40	ACGGTGTAT CAAAGGCATC ACCGTAACAC ACACCCCTGAG GGAGCAGGGC CAGAATAGCC	780
	TTCTCAATAG CGCGGAACCA AGGGCCAAAG AGGGCGCAGA AGGTCTTGT CCAGGCCGAG	840
45	ATGCCCTGGC CCACTTACC ATGGCAATG GTCTCACCTG TGGTGAACCTT GTTACAATCT	900
	TTCTGGAAGA AGGTGATCCT GGACACGTCA CGGTTGCAA GATCAAGCTC AAGGACGGCG	960
50	GAGCCATCCT GGCCCTCTC GACCATGGCC TCCACTAGCT CGTACAATTG ACAAGTTGTA	1020
	ACCTGTACGG GGCAATGGC CGGGATAAAA CGGGCGAGAG AGTCGGGAAC ATCAGAGTGG	1080
	GAAGCATTGT AGAGCTTGT GCGACCGCCG TAGCGGCCA CGAGTGTGGA CAGCACGGCC	1140
55	TTGCCTGGC TCGGGCGGC CATCGGGCAG TGCACAATGT CTGTTAATTG AAATGTTACG	1200

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	ACACTATCAC AGGTGGTGAG CTCCTGGGGC AGGTAGAGAA GGCCCTGTC GAGCTCGGGG	1260
	CAGGGTGGTA GAACAGCTGC AACAGGGACA GGTCT	1295
5	a third sequence (SEQ ID NO.6):	
	AGGCAGACCA CATATGTGGT CGATGCC ATGGAGGCC ATCAGTTAT TAAGGCTCCT	57
	GGCATCACTA CTGCTATTGA GCAGGGCTCTAGCAGCGG CCAACTCTGC CCTGGCGAAT	117
10	GCTGTGGTAG TTAGGCCTTT TCTCTCTCAC CAGCAGATTG AGATCCTCAT TAACCTAATG	177
	CAACCTCGCC AGCTTGTGAGG GCGCCCCGAG GTTTCTGGA ATCATCCCAT CCAGCGTGTC	237
	ATCCATAACG AGCTGGAGCT TTACTGCCGC GCCCGCTCCG GCCGCTGTCT TGAAATTGGC	297
15	GCCCATCCCC GCTCAATAAA TGATAATCCT AATGTGGTCC ACCGCTGCTT CCTCCGCCCT	357
	GTTGGGCGTG ATGTTCAGCG CTGGTATACT GCTCCCACTC GCGGGCCGGC TGCTAATTGC	417
20	CGGCCTTCCG CGCTGCCGG GCTTCCCGCT GCTGACCGCA CTTACTGCCCT CGACGGGTTT	477
	TCTGGCTGTA ACTTTCCCGC CGAGACTGGC ATCGCCCTCT ACTCCCTTCA TGATATGTCA	537
	CCATCTGATG TCGCCGAGGC CATGTTCCGC CATGGTATGA CGCGGCTCTA TGCCGCCCTC	597
25	CATCTTCCGC CTGAGGTCT GCTGCCCTG GGCACATATC GCACCGCATC GTATTTGCTA	657
	ATTCATGACG GTAGGCGCGT TGTGGTGACG TATGAGGGTG ATACTAGTGC TGGTTACAAC	717
30	CACGATGTCT CCAACTTGCG CTCCTGGATT AGAACCAACCA AGGTTACCGG AGACCATCCC	777
	CTCGTTATCG AGCGGGTTAG GGCCATTGGC TGCCACTTTG TTCTCTTGCT CACGGCAGCC	837
	CCGGAGCCAT CACCTATGCC TTATGTTCT TACCCCCGGT CTACCGAGGT CTATGTCCGA	897
35	TCGATCTTCG GCCCGGGTGG CACCCCTCC TTATCCCAA CCTCATGCTC CACTAAGTCG	957
	ACCTTCCATG CTGTCCTGC CCATATTTGG GACCGTCTTA TGCTGTTCGG GGCCACCTTG	1017
40	GATGACCAAG CCTTTGCTG CTCCCGTTA ATGACCTACC TTCGCGGCAT TAGCTACAAG	1077
	GTCACTGTTG GTACCCCTGT GGCTAATGAA GGCTGGAATG CCTCTGAGGA CGCCCTCACA	1137
	GCTGTTATCA CTGCCGCCTA CCTTACCAATT TGCCACCAAGC GGTATCTCCG CACCCAGGCT	1197
45	ATATCCAAGG GGATGCGTCG TCTGGAACGG GAGCATGCC AGAAGTTAT AACACGCCCTC	1257
	TACAGCTGGC TCTTCGAGAA GTCCGGCCGT GATTACATCC CTGGCCGTCA GTTGGAGTTC	1317
50	TACGCCAGT GCAGGGCGCTG GCTCTCCGCC GGCTTCATC TTGATCCACG GGTGTTGGTT	1377
	TTTGACGAGT CGGCCCCCTG CCATTGAGG ACCGCGATCC GTAAGGCCTCTCAAAGTTT	1437
	TGCTGCTTCA TGAAGTGGCT TGGTCAGGAG TGACCTGCT TCCTTCAGCC TGCAGAAGGC	1497
55	GCCGTCGGCG ACCAGGGTCA TGATAATGAA GCCTATGAGG GGTCCGATGT TGACCCCTGCT	1557

	GAGTCCGCCA TTAGTGACAT ATCTGGGTCC TATGTCGTCC CTGGCACTGC CCTCCAACCG	1617
5	CTCTACCAGG CCCTCGATCT CCCCCTGAG ATTGTGGCTC GCGCGGGCCG GCTGACCGCC	1677
	ACAGTAAAGG TCTCCCAGGT CGATGGGCGG ATCGATTGCG AGACCCCTCT TGGTAACAAA	1737
	ACCTTTCGCA CGTCGTTCGT TGACGGGGCG GTCTTAGAGA CCAATGGCCC AGAGCGCCAC	1797
10	AATCTCTCCT TCGATGCCAG TCAGAGCACT ATGGCCGCTG GCCCTTCAG TCTCACCTAT	1857
	GCCGCCTCTG CAGCTGGCT GGAGGTGCGC TATGTTGCTG CCGGGCTTGA CCATCGGGCG	1917
15	GTCCCCGCC CCGGTGTTTC ACCCCGGTCA GCCCCCGGCG AGGTTACCGC CTTCTGCTCT	1977
	GCCCTATACA GGTTAACCG TGAGGCCAG CGCCATTGCG TGATCGGTAA CTTATGGTTC	2037
	CATCCTGAGG GACTCATTGG CCTCTTCGCC CCGTTTCGC CCGGGCATGT TTGGGAGTCG	2097
20	GCTAATCCAT TCTGTGGCGA GAGCACACTT TACACCCGTA CTTGGTCGGA GGTTGATGCC	2157
	GTCTCTAGTC CAGCCCCGCC TGACTTAGGT TTTATGTCTG AGCCTTCTAT ACCTAGTAGG	2217
25	GCCGCCACGC CTACCCCTGGC GGCCCCCTCA CCCCCCCCCTG CACCGGACCC TTCCCCCCCCT	2277
	CCCTCTGCC CGGCGCTTGC TGAGCCGGCT TCTGGCGCTA CCGCCGGGGC CCCGGCCATA	2337
	ACTCACAGA CGGCCCGGCA CCGCCGCCTG CTCTTCACCT ACCCGGATGG CTCTAAGGTA	2397
30	TTCGCCGGCT CGCTGTTCGA GTGACATGC ACGTGGCTCG TTAACGCGTC TAATGTTGAC	2457
	CACCGCCCTG GCGGCCGGCT TTGCCATGCA TTTTACCAAA GGTACCCCGC CTCCCTTGAT	2517
35	GCTGCCTCTT TTGTGATGCG CGACGGCGCG GCCGCGTACA CACTAACCCC CCGGCCAATA	2577
	ATTCACGCTG TCGCCCCCTGA TTATAGGTG AACATAACC CAAAGAGGCT TGAGGCTGCT	2637
	TATCGGGAAA CTTGCTCCCG CCTCGGCACC GCTGCATACC CGCTCCTCGG GACCGGCATA	2697
40	TACCAAGGTGC CGATCGGCC CAGTTTGAC GCCTGGGAGC GGAACCACCG CCCCAGGGAT	2757
	GAGTTGTACC TTCCCTGAGCT TGCTGCCAGA TGGTTGAGG CCAATAGGCC GACCCGCCCG	2817
45	ACTCTCACTA TAACTGAGGA TGTTGCACGG ACAGCGAATC TGGCCATCGA GCTTGACTCA	2877
	GCCACAGATG TCGGCCGGGC CTGTGCCGGC TGTCGGGTCA CCCCCGGCGT TGTCAGTAC	2937
	CAGTTTACTG CAGGTGTGCC TGGATCCGGC AAGTCCCGCT CTATCACCCA AGCCGATGTG	2997
50	GACGTTGTCG TGGTCCCGAC GCGTGAGTTG CGTAATGCCT GGCGCCGTG CGGTTTGCT	3057
	GCTTTTACCC CGCATACTGC CGCCAGAGTC ACCCAGGGGC GCCGGGTTGT CATTGATGAG	3117
55	GCTCCATCCC TCCCCCTCA CCTGCTGCTG CTCCACATGC AGCGGGCCGC CACCGTCCAC	3177
	CTTCTTGGCG ACCCGAACCA GATCCCAGCC ATCGACTTTG AGCACGCTGG GCTCGTCCCC	3237

	GCCATCAGGC CCGACTTAGG CCCCACCTCC TGGTGGCATG TTACCCATCG CTGGCCTGCG	3297
5	GATGTATGCG AGCTCATCCG TGGTGCATAC CCCATGATCC AGACCACTAG CCGGGTTCTC	3357
	CGTTCGTTGT TCTGGGGTGA GCCTGCCGTC GGGCAGAAAC TAGTGTTCAC CCAGGCGGCC	3417
	AAGCCCGCCA ACCCCGGCTC AGTGACGGTC CACGAGGCAC AGGGCGCTAC CTACACGGAG	3477
10	ACCACTATTA TTGCCACAGC AGATGCCGG GGCCTTATTG AGTCGTCTCG GGCTCATGCC	3537
	ATTGTTGCTC TGACGCGCCA CACTGAGAAG TGCCTCATCA TTGACGCACC AGGCCTGCTT	3597
15	CGCGAGGTGG GCATCTCCGA TGCAATCGTT AATAACTTTT TCCTCGCTGG TGGCGAAATT	3657
	GGTCACCAGC GCCCATCAGT TATTCCCCGT GGCAACCCCTG ACGCCAATGT TGACACCCCTG	3717
	GCTGCCTTCC CGCCGTCTTG CC-GATTAGT GCCTCCATC AGTTGGCTGA GGAGCTTGGC	3777
20	CACAGACCTG TCCCTGTTGC AGCTGTTCTA CCACCCCTGCC CCGAGCTCGA ACAGGGCCTT	3837
	CTCTACCTGC CCCAGGAGCT CACCACCTGT GATACTGTCG TAACATTGAA ATTAACAGAC	3897
25	ATTGTGCACT GCCGCATGGC CGCCCCGAGC CAGCGCAAGG CCGTGTGTC CACACTCGTG	3957
	GGCCGCTACG GCGGTCGCAC AAAGCTCTAC AATGCTTCCC ACTCTGATGT TCGCGACTCT	4017
	CTCGCCCGTT TTATCCCCGC CATTGGCCCC GTACAGGTAA CAACTTGTGA ATTGTACGAG	4077
30	CTAGTGGAGG CCATGGTCGA GAAGGGCCAG GATGGCTCCG CCGTCCTTGA GCTTGATCTT	4137
	TGCAACCGTG ACGTGTCCAG GATCACCTTC TTCCAGAAAG ATTGTAACAA GTTCACCACA	4197
35	GGTGAGACCA TTGCCCATGG TAAAGTGGGC CAGGGCATCT CGGCCTGGAG CAAGACCTTC	4257
	TGCGCCCTCT TTGGCCCTTG GTTCCGGCT ATTGAGAAGG CTATTCTGGC CCTGCTCCCT	4317
	CAGGGTGTGT TTTACGGTGA TGCCTTGAT GACACCGTCT TCTCGGCCGGC TGTGGCCGCA	4377
40	GCAAAGGCAT CCATGGTGTG TGAGAATGAC TTTTCTGAGT TTGACTCCAC CCAGAATAAC	4437
	TTTTCTCTGG GTCTAGAGTG TGCTATTATG GAGGAGTGTG GGATGCCGCA GTGGCTCATC	4497
45	CGCCTGTATC ACCTTATAAG GTCTGCGTGG ATCTGCAGG CCCCCGAAGGA GTCTCTGCCA	4557
	GGGTTTTGGA AGAAACACTC CGGTGAGCCC GGCACCTTTC TATGGAATAC TGTCTGGAAT	4617
	ATGGCCGTTA TTACCCACTG TTATGACTTC CGCGATTTTC AGGTGGCTGC CTTAAAGGT	4677
50	GATGATTGCA TAGTGTTTG CAGTGAGTAT CGTCAGAGTC CAGGAGCTGC TGTCCCTGATC	4737
	GCCGGCTGTG GCTTGAAGTT GAAGGTAGAT TTCCGCCGA TCGGTTTGTG TGCAAGGTGTT	4797
55	GTGGTGGCCC CGGGCCTTGG CGCGCTCCCT GATGTTGTGC GCTTCGCCGG CGGGCTTAC	4857
	GAGAAGAATT GGGGCCCTGG CCCTGAGCGG GCGGAGCAGC TCCGCCTCGC TGTTAGTGAT	4917

	TTCCCTCCGCA AGCTCACGAA TGTAGCTCAG ATGTGTGTGG ATGTTGTTTC CCGTGTAT 4977
5	GGGGTTTCCC CTGGACTCGT TCATAACCTG ATTGGCATGC TACAGGCTGT TGCTGATGGC 5037
	AAGGCACATT TCACTGAGTC AGTAAAACCA GTGCTGACT TGACAAATTCA AATCTGTGT 5097
	CGGGTGGAAT GA ATAACATGTC TTTTGCTGCG CCCATGGGTT CGCGACCAG 5149
10	CGCCCTCGGC CTATTTGTT GCTGCTCCTC ATGTTTTGC CTATGCTGCC CGCGCCACCG 5209
	CCCGGTCAGC CGTCTGGCCG CCGTCGTGGG CGGCGCAGCG GCGGTTCCGG CGGTGGTTTC 5269
15	TGGGGTGACC GGGTTGATTC TCAGCCCTTC GCAATCCCCT ATATTCATCC AACCAACCCC 5329
	TCGCCCCCG ATGTCACCGC TGCGGCCGGG GCTGGACCTC GTGTTGCCA ACCCGCCCGA 5389
	CCACTCGGCT CCGCTTGGCG TGACCAGGCC CAGCGCCCCG CCGTTGCCCTC ACGTCGTAGA 5449
20	CCTACCACAG CTGGGGCCGC GCCGCTAA CCGCGGTGCG TCCGGCCCAT GACACCCCGC 5507
	CAGTGCCTGA TGTCGACTCC CGCGCGGCCA TCTTGCACCG GCAGTATAAC CTATCAACAT 5567
25	CTCCCCTTAC CTCTTCGTG GCCACCGGCA CTAACCTGGT TCTTTATGCC GCCCCTCTTA 5627
	GTCCGCTTTT ACCCCTTCAG GACGGCACCA ATACCCATAT AATGGCCACG GAAGCTTCTA 5687
	ATTATGCCCA GTACCGGGTT GCCCGTGCCA CAATCCGTTA CCGCCCGCTG GTCCCCAATG 5747
30	CTGTCGGCGG TTACGCCATC TCCATCTCAT TCTGGCCACA GACCACCAAC ACCCCGACGT 5807
	CCGTTGATAT GAATTCAATA ACCTCGACGG ATGTTCGTAT TTTAGTCCAG CCCGGCATAG 5867
35	CCTCTGAGCT TGTGATCCA AGTGAGCGCC TACACTATCG TAACCAAGGC TGGCGCTCCG 5927
	TCGAGACCTC TGGGGTGGCT GAGGAGGAGG CTACCTCTGG TCTTGTATG CTTTGCATAC 5987
	ATGGCTCACT CGTAAATTCC TATACTAATA CACCCATAC CGGTGCCCTC GGGCTGTTGG 6047
40	ACTTGCCTT TGAGCTTGAG TTTCGCAACC TTACCCCCGG TAACACCAAT ACGCGGGTCT 6107
	CCCGTTATTC CAGCACTGCT CGCCACCGCC TTCTGCGCGG TGCGGACGGG ACTGCCGAGC 6167
45	TCACCAACAC GGCTGCTACC CGCTTATGA AGGACCTCTA TTTTACTAGT ACTAATGGTG 6227
	TCGGTGAGAT CGGCCGCGGG ATAGCCCTCA CCCTGTTCAA CCTTGCTGAC ACTCTGCTTG 6287
	GCGGCCTGCC GACAGAATTG ATTCGTCGG CTGGTGGCCA GCTGTTCTAC TCCCGTCCCG 6347
50	TTGTCTCAGC CAATGGCGAG CCGACTGTTA AGTTGTATAC ATCTGTAGAG AATGCTCAGC 6407
	AGGATAAGGG TATTGCAATC CCGCATGACA TTGACCTCGG AGAATCTCGT GTGGTTATTC 6467
55	AGGATTATGA TAACCAACAT GAACAAGATC GGCGACGCC TTCTCCAGCC CCATCGCGCC 6527
	CTTTCTCTGT CCTTCGAGCT AATGATGTGC TTTGGCTCTC TCTCACCGCT GCCGAGTATG 6587

	ACCAAGTCCAC TTATGGCTCT TCGACTGGCC CAGTTTATGT TTCTGACTCT GTGACCTTGG	6647
5	TTAATGTTGC GACCGGGCGCG CAGGCCGTTG CCCGGTCGCT CGATTGGACC AAGGTCACAC	6707
	TTGACGGTCG CCCCCCTCTCC ACCATCCAGC AGTACTCGAA GACCTTCTTT GTCTGCCGC	6767
	TCCGCGGTAA GCTCTTTTC TGGGAGGCAG GCACAACCAA AGCCGGGTAC CCTTATAATT	6827
10	ATAACACCCAC TGCTAGCGAC CAACTGCTTG TCGAGAATGC CGCCGGGCAC CGGGTCGCTA	6887
	TTTCCACTTA CACCACTAGC CTGGGTGCTG GTCCCGTCTC CATTCTGCG GTTGCCGTTT	6947
15	TAGCCCCCA CTCTGCGCTA GCATTGCTTG AGGATACCTT GGACTACCCCT GCCCCGCGCCC	7007
	ATACTTTGA TGATTTCTGC CCAGAGTGCC GCCCCCTTGG CCTTCAGGGC TGCGCTTTCC	7067
	AGTCTACTGT CGCTGAGCTT CAGCGCCTA AGATGAAGGT GGGTAAAACG CGGGAGTTGT	7127
20	AG TTTATTTGCT TGTGCCCCCC TTCTTCTGT TGCTTATTTC TCATTTCTGC	7179
	GTTCCCGCGCT CCCTGA	7195
	a fourth sequence (SEQ ID NO.10):	
25	GCCATGGAGG CCCACCAAGTT CATTAAGGCT CCTGGCATCA CTACTGCTAT TGAGCAAGCA	60
	GCTCTAGCAG CGGCCAACTC CGCCCTTGCG AATGCTGTGG TGGTCCGGCC TTTCTTTCC	120
30	CATCAGCAGG TTGAGATCCT TATAAATCTC ATGCAACCTC GGCAGCTGGT GTTTCGTCT	180
	GAGGTTTTT GGAATCACCC GATTCAACGT GTTATACATA ATGAGCTTGA GCAGTATTGC	240
	CGTGCTCGCT CGGGTCGCTG CCTTGAGATT GGAGCCCACC CACGCTCCAT TAATGATAAT	300
35	CCTAATGTCC TCCATCGCTG CTTTCTCCAC CCCGTCGGCC GGGATGTTCA GCGCTGGTAC	360
	ACAGCCCCGA CTAGGGGACC TGCAGCGAAC TGTGCGCGCT CGGCACCTCG TGGTCTGCCA	420
	CCAGCCGACC GCACTTACTG TTTTGATGGC TTTGCCGGCT GCCGTTTGC CGCCGAGACT	480
40	GGTGTGGCTC TCTATTCTCT CCATGACTTG CAGCCGGCTG ATGTTGCCGA GGCGATGGCT	540
	CGCCACGGCA TGACCCGCC TTATGAGCT TTCCACTTGC CTCCAGAGGT GCTCCTGCCT	600
45	CCTGGCACCT ACCGGACATC ATCCTACTTG CTGATCCACG ATGGTAAGCG CGCGGTTGTC	660
	ACTTATGAGG GTGACACTAG CGCCGGTTAC AATCATGATG TTGCCACCCCT CCGCACATGG	720
	ATCAGGACAA CTAAGGTTGT GGGTGAACAC CCTTTGGTGA TCGAGCGGGT GCGGGGTATT	780
50	GGCTGTCACT TTGTGTTGTT GATCACTGCG GCCCCTGAGC CCTCCCCGAT GCCCTACGTT	840
	CCTTACCCGC GTTCGACGGA GGTCTATGTC CGGTCTATCT TTGGGCCCGG CGGGTCCCCG	900
55	TCGCTGTTCC CGACCGCTTG TGCTGTCAAG TCCACTTTTC ACGCCGTCCC CACGCACATC	960

TGGGACCGTC TCATGCTCTT TGGGGCCACC CTCGACGACC AGGCCTTTG CTGCTCCAGG 1020
 CTTATGACGT ACCTTCGTGG CATTAGCTAT AAGGTAACTG TGGGTGCCCT GGTCGCTAAT 1080
 5 GAAGGCTGGA ATGCCACCGA GGATGCGCTC ACTGCAGTTA TTACGGCGGC TTACCTCACA 1140
 ATATGTCATC AGCGTTATTG GCGGACCCAG GCGATTCTA AGGGCATGCG CCGGCTTGAG 1200
 CTTGAACATG CTCAGAAATT TATTCACGC CTCTACAGCT GGCTATTGGA GAAGTCAGGT 1260
 10 CGTGATTACA TCCCAGGCCG CCAGCTGCAG TTCTACGCTC AGTGCCGCCG CTGGTTATCT 1320
 GCGGGGTTCC ATCTCGACCC CGCACCTTA GTTTTGATG AGTCAGTGCC TTGTAGCTGC 1380
 15 CGAACACCCA TCCGGCGGAT CGCTGGAAAA TTTTGTGTT TTATGAAGTG GCTCGGTAG 1440
 GAGTGTCTT GTTCTCCA GCCCGCCGAG GGGCTGGCGG GCGACCAAGG TCATGACAAT 1500
 20 GAGGCCTATG AAGGCTCTGA TGTTGATACT GCTGAGCCTG CCACCCCTAGA CATTACAGGC 1560
 TCATACATCG TGGATGGTCG GTCTCTGCAA ACTGTCATC AAGCTCTGA CCTGCCAGCT 1620
 GACCTGGTAG CTCGCGCAGC CCGACTGTCT GCTACAGTTA CTGTTACTGA AACCTCTGGC 1680
 25 CGTCTGGATT GCCAAACAAT GATCGGCAAT AAGACTTTTC TCACTACCTT TGTTGATGGG 1740
 GCACGCCTTG AGGTTAACGG GCCTGAGCAG CTTAACCTCT CTTTGACAG CCAGCAGTGT 1800
 30 AGTATGGCAG CCGGCCGTT TTGCCTCACC TATGCTGCCG TAGATGGCGG GCTGGAAGTT 1860
 CATTCTCCA CCGCTGGCCT CGAGAGCCGT GTTGTGTTCC CCCCTGGTAA TGCCCCGACT 1920
 GCCCCGCCGA GTGAGGTAC CGCCTCTGC TCAGCTCTT ATAGGCACAA CCGGCAGAGC 1980
 35 CAGCGCCAGT CGGTTATTGG TAGTTGTGG CTGCACCCCTG AAGGTTGCT CGGCCTGTT 2040
 CCGCCCTTTT CACCCGGCA TGAGTGGCGG TCTGCTAACCC CATTGTCGG CGAGAGCAGC 2100
 40 CTCTACACCC GCACTGGTC CACAATTACA GACACACCCCT TAACTGTCGG GCTAATTCC 2160
 GGTCAATTGG ATGCTGCTCC CCACTGGGG GGGCCACCTG CTACTGCCAC AGGCCCTGCT 2220
 GTAGGCTCGT CTGACTCTCC AGACCCCTGAC CCGCTACCTG ATGTTACAGA TGGCTCACGC 2280
 45 CCCTCTGGGG CCCGTCCGGC TGGCCCCAAC CCGAATGGCG TTCCGCAGCG CCGCTTACTA 2340
 CACACCTACC CTGACGGCGC TAAGATCTAT GTCGGCTCCA TTTTCGAGTC TGAGTGCACC 2400
 TGGCTTGTCACCGCATCTAA CGCCGGCCAC CGCCCTGGTG GCGGGCTTTG TCATGCTTTT 2460
 50 TTTCAAGCTT ACCCTGATTC GTTTGACGCC ACCAAGTTG TGATGCGTGA TGGCTTGCCT 2520
 GCGTATAACCC TTACACCCCG GCCGATCATT CATGCGGTGG CCCCGGACTA TCGATTGGAA 2580
 55 CATAACCCCA AGAGGCTCGA GGCTGCCTAC CGCGAGACTT GCGCCCGCCG AGGCACGTGCT 2640

	GCCTATCCAC TCTTAGGCAC TGGCATTAC CAGGTGCCTG TTAGTTGAG TTTTGATGCC	2700
	TGGGAGCGGA ACCACCGCCC GTTTGACGAG CTTTACCTAA CAGAGCTGGC GGCTCGGTGG	2760
5	TTTGAATCCA ACCGCCCCGG TCAGCCCCAG TTGAACATAA CTGAGGATAC CGCCCGTGC	2820
	GCCAACCTGG CCCTGGAGCT TGACTCCGGG AGTGAAGTAG GCCGCGCATG TGCCGGGTGT	2880
	AAAGTCGAGC CTGGCGTTGT GCGGTATCAG TTTACAGCCG GTGTCCCCGG CTCTGGCAAG	2940
10	TCAAAGTCGG TGCAACAGGC GGATGTGGAT GTTGTGTTG TGCCCACTCG CGAGCTTCGG	3000
	AACGCTTGGC GGCGCCGGGG CTTTGGGCA TTCACTCCGC ACACTGCGGC CCGTGTCACT	3060
15	AGCGGCCGTA GGGTTGTAT TGATGAGGCC CCTTCGCTCC CCCCACACTT GCTGCTTTA	3120
	CATATGCAGC GTGCTGCATC TGTGCACCTC CTTGGGGACC CGAATCAGAT CCCCGCCATA	3180
	GATTTGAGC ACACCGGTCT GATTCCAGCA ATACGGCCGG AGTTGGTCCC GACTTCATGG	3240
20	TGGCATGTCA CCCACCGTTG CCCTGCAGAT GTCTGTGAGT TAGTCGTGG TGCTTACCT	3300
	AAAATCCAGA CTACAAGTAA GGTGCTCCGT TCCCTTTCT GGGGAGAGCC AGCTGTGGC	3360
25	CAGAAGCTAG TGTTCACACA GGCTGCTAAG GCCGCGCACC CCGGATCTAT AACGGTCCAT	3420
	GAGGCCAGG GTGCCACTTT TACCACTACA ACTATAATTG CAACTGCAGA TGCCCGTGGC	3480
	CTCATACTAGT CCTCCCGGGC TCACGCTATA GTTGCTCTCA CTAGGCATAC TGAAAAATGT	3540
30	GTTATACTTG ACTCTCCCGG CCTGTTGCGT GAGGTGGGTA TCTCAGATGC CATTGTTAAT	3600
	AATTTCTTCC TTTCGGGTGG CGAGGTTGGT CACCAGAGAC CATCGGTAT CTCGGGAGGC	3660
35	AACCTGACC GCAATGTTGA CGTGCTTGCG GCGTTCCAC CTTCATGCC AATAAGCGCC	3720
	TTCCATCAGC TTGCTGAGGA GCTGGGCCAC CGGCCGGCGC CGGTGGCGGC TGTGCTACCT	3780
	CCCTGCCCTG AGCTTGAGCA GGGCCTCTC TATCTGCCAC AGGAGCTAGC CTCCGTGAC	3840
40	AGTGTGTTGA CATTGAGCT AACTGACATT GTGCACTGCC GCATGGCGGC CCCTAGCCAA	3900
	AGGAAAGCTG TTTTGTCCAC GCTGGTAGGC CGGTATGGCA GACGCACAAG GCTTTATGAT	3960
45	GCGGGTCACA CCGATGTCCG CGCCTCCCTT GCGCGCTTTA TTCCCACTCT CGGGCGGGTT	4020
	ACTGCCACCA CCTGTGAAC TTTGAGCTT GTAGAGGCCA TGTTGGAGAA GGGCAAGAC	4080
	GGTTCAGCCG TCCCTGAGTT GGATTTGTGC AGCCGAGATG TCTCCCGCAT AACCTTTTC	4140
50	CAGAAGGATT GTAACAAGTT CACGACCGGC GAGACAATTG CGCATGGCAA AGTCGGTCAG	4200
	GGTATCTTCC GCTGGAGTAA GACGTTTGT GCCCTGTTG GCCCTGGTT CGGTGCGATT	4260
55	GAGAAGGCTA TTCTATCCCT TTTACACAA GCTGTGTTCT ACGGGGATGC TTATGACGAC	4320

	TCAGTATTCT CTGCTGCCGT GGCTGGCGCC AGCCATGCCA TGGTGTGTTGA AAATGATTT	4380
	TCTGAGTTTG ACTCGACTCA GAATAACTT TCCCTAGGTC TTGAGTGCAGC CATTATGGAA	4440
5	GAGTGTGGTA TGCCCCAGTG GCTTGTCAAGG TTGTACCATG CCGTCCGGTC GGCCTGGATC	4500
	CTGCAGGCC CAAAAGAGTC TTTGAGAGGG TTCTGGAAGA AGCATTCTGG TGAGCCGGC	4560
10	AGCTTGCTCT GGAATACGGT GTGGAACATG GCAATCATTG CCCATTGCTA TGAGTTCCGG	4620
	GACCTCCAGG TTGCCGCCTT CAAGGGCGAC GACTCGGTG TCCTCTGTAG TGAATACCGC	4680
	CAGAGCCAG GCGCCGGTTC GCTTATAGCA GGCTGTGGTT TGAAGTTGAA GGCTGACTTC	4740
15	CGGCCGATTG GGCTGTATGC CGGGGTTGTC GTCGCCCCGG GGCTCGGGGC CCTACCCGAT	4800
	GTCGTTCGAT TCGCCGGACG GCTTCGGAG AAGAACTGGG GGCTGTATCC GGAGCGGGCA	4860
20	GAGCAGCTCC GCCTCGCCGT GCAGGATTTC CTCCGTAGGT TAACGAATGT GGCCAGATT	4920
	TGTGTTGAGG TGGTGTCTAG AGTTTACGGG GTTTCCCCGG GTCTGGTTCA TAACCTGATA	4980
	GGCATGCTCC AGACTATTGG TGATGGTAAG GCGCATTAA CAGAGTCTGT TAAGCCTATA	5040
25	CTTGACCTTA CACACTCAAT TATGCACCGG TCTGAATGAA TAACATGTGG TTTGCTGC	5100
	CCATGGGTTTGC GCCACCATGC GCCCTAGGCC TCTTTGCTG TTGTTCTCT TGTTCTGCC	5160
30	TATGTTGCCCG CGGCCACCGA CCGGTAGGCC GTCTGGCCGC CGTCGTGGC GGCGCAGCGG	5220
	CGGTACCGGC GGTGGTTCT GGGGTGACCG GGTTGATTCT CAGCCCTTCG CAATCCCCTA	5280
	TATTCATCCA ACCAACCCCT TTGCCCCAGA CGTTGCCGCT GCGTCCGGGT CTGGACCTCG	5340
35	CCTTCGCCAA CCAGCCCCGC CACTTGGCTC CACTTGGCGA GATCAGGCC AGCGCCCCCTC	5400
	CGCTGCCTCC CGTCGCCGAC CTGCCACAGC CGGGGCTGCG GCGCTGACGG CTGTGGCGCC	5460
40	TGCCCATGAC ACCTCACCCG TCCCGGACGT TGATTCTCGC GGTGCAATTG TACGCCGCCA	5520
	GTATAATTG TCTACTTCAC CCCTGACATC CTCTGTGGCC TCTGGCACTA ATTTAGTCCT	5580
	GTATGCAGCC CCCTTAACAT CGCCTCTGCC GCTGCAGGAC GGTACTAATA CTCACATTAT	5640
45	GGCCACAGAG GCCTCCAATT ATGCACAGTA CCGGGTTGCC CGCGCTACTA TCCGTTACCG	5700
	GCCCCTAGTG CCTAATGCAG TTGGAGGCTA TGCTATATCC ATTTCTTCTT GGCCTCAAAC	5760
	AACCACAAACC CCTACATCTG TTGACATGAA TTCCATTACT TCCACTGATG TCAGGATTCT	5820
50	TGTTCAACCT GGCAAGCAT CTGAATTGGT CATCCCAAGC GAGCGCCTTC ACTACCGCAA	5880
	TCAAGGTTGG CGCTCGGGTTG AGACATCTGG TGTTGCTGAG GAGGAAGCCA CCTCCGGTCT	5940
55	TGTCAATGTTA TGCATACATG GCTCTCCAGT TAACTCCTAT ACCAACACCC CTTATACCGG	6000

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	CTGCGTGGAT CCTGCAGGCC CCGAAGGAGT CCCTGCGAGG GTGTTGGAAG AAACACTCCG	540
5	GTGAGCCCGG CACTCTTCTA TGGAATACTG TCTGGAACAT GGCGTGTATC ACCCATTGTT	600
	ACGATTTCCG CGATTTGCAG GTGGCTGCCT TTAAAGGTGA TGATTCGATA GTGCTTGCA	660
	GTGAGTACCG TCAGAGTCCA GGGGCTGCTG TCCTGATTGC TGGCTGTGGC TTAAAGCTGA	720
10	AGGTGGGTTT CCGTCCGATT GGTTTGATG CAGGTGTTGT GGTGACCCCC GGCCCTGGCG	780
	CGCTTCCCGA CGTCGTGCAG TTGTCCGGCC GGCTTACTGA GAAGAATTGG GGCCCTGGCC	840
	CTGAGCGGGC GGAGCAGCTC CGCCTTGCTG TGCG	874

15 or a sequence complementary thereto.

4. A protein which is (a) immunoreactive with antibodies present in individuals infected with enterically transmitted nonA/nonB hepatitis and (b) derived from a viral hepatitis agent whose genome contains a region which is homologous to the 1.33 kb DNA EcoRI insert present in plasmid pTZXF1(ET1.1) carried in E. coli strain BB4, and having ATCC Deposit Nno. 67717.

5. The protein of claim 4, which is encoded by a coding region within said 1.33 kb EcoRI insert.

30 6. A protein which is (a) immunoreactive with antibodies present in individuals infected with enterically transmitted nonA/nonB hepatitis and (b) encoded by genetic sequence 406.3-2 or 406.4-2 or a fragment thereof.

35 7. A method of detecting infection by
enterically transmitted nonA/nonB hepatitis viral
agent in a test individual, comprising:
40 providing a peptide antigen which is (a)
immunoreactive with antibodies present in individuals
infected with enterically transmitted nonA/nonB
hepatitis and (b) derived from a viral hepatitis agent
whose genome contains a region which is homologous to

the 1.33 kb DNA EcoRI insert present in plasmid PTZKF1(ET1.1) carried in E. coli strain BB4, and having ATCC deposit no. 67717,

5 reacting serum from the test individual with such antigen, and

examining the antigen for the presence of bound antibody.

8. The method of claim 7, wherein the serum antibody is an IgM or IgG antibody, or a mixture of both, the antigen provided is attached to a support, said reacting includes contacting such serum with the support and said examining includes reacting the support and bound serum antibody with a reporter-labeled anti-human antibody.

9. A kit for ascertaining the presence of serum antibodies which are diagnostic of enterically transmitted nonA/nonB hepatitis infection, comprising a support with surface-bound recombinant peptide antigen which is (a) immunoreactive with antibodies present in individuals infected with enterically transmitted nonA/nonB viral hepatitis agent and (b) derived from a viral hepatitis agent whose genome contains a region which is homologous to the 1.33 kb DNA EcoRI insert present in plasmid PTZKF1(ET1.1) carried in E. coli strain BB4, and having ATCC deposit no. 67717, and a reporter-labeled anti-human antibody.

10. A DNA fragment derived from an enterically transmitted nonA/nonB viral hepatitis agent whose genome contains a region which is homologous to the 1.33 kb DNA EcoRI insert present in plasmid PTZKF1(ET1.1) carried in E. coli strain BB4 and having ATCC deposit no. 67717.

11. The fragment of claim 10, which is derived
from said 1.33 kb EcoRI insert.

12. A DNA molecule comprising genetic sequence
5 406.3-2 or 406.4-2 or a fragment thereof, wherein said
fragment comprises at least 12 consecutive
nucleotides.

13. A DNA fragment derived from an enterically
10 transmitted nonA/nonB viral hepatitis agent whose
genome contains a region which is homologous to a DNA
fragment within a first sequence (SEQ ID NO.1):

	AGACCTGTCC CTGTTGCAGC TGTTCTACCA CCCTGCCCG AGCTCGAACCA GGGCCTTCTC	60
15	TACCTGCCCG AGGAGCTCAC CACCTGTGAT AGTGTGTAACATT AACAGACATT	120
	GTGCACTGCC GCATGGCCGC CCCGAGCCAG CGCAAGGCCAG TGCTGTCCAC ACTCGTGGGC	180
20	CGCTACGGCG GTGCAACAAA GCTCTACAAT GCTTCCACT CTGATGTTCG CGACTCTCTC	240
	GCCCCTTTA TCCCGGCCAT TGGCCCGTA CAGGTTACAA CTTGTGAATT GTACGAGCTA	300
	GTGGAGGCCA TGGTCGAGAA GGGCCAGGAT GGCTCCGCCG TCCTTGAGCT TGATCTTGC	360
25	AACCGTGACG TGTCCAGGAT CACCTCTTC CAGAAAGATT GTAACAAGTT CACCACAGGT	420
	GAGACCATTG CCCATGGTAA AGTGGGCCAG GGCATCTCGG CCTGGAGCAA GACCTCTGC	480
30	GCCCTCTTG GCCCTGGTT CCGCGCTATT GAGAAGGCTA TTCTGGCCCT GCTCCCTCAG	540
	GGTGTGTTT ACGGTGATGC CTTTGATGAC ACCGCTTCTCG GCGCGGCTGT GGCGCAGCA	600
	AAGGCATCCA TGGTGTGTTGA GAATGACTTT TCTGAGTTG ACTCCACCCA GAATAACTTT	660
35	TCTCTGGTC TAGAGTGTGC TATTATGGAG GAGTGTGGGA TGCCGCAGTG GCTCATCCGC	720
	CTGTATCACC TTATAAGGTC TGCGTGGATC TTGCAGGCC CGAAGGAGTC TCTGCGAGGG	780
40	TTTTGGAAGA AACACTCCGG TGAGCCGGC ACTCTTCTAT GGAATACTGT CTGGAATATG	840
	GCCGTTATTA CCCACTGTTA TGACTCCGC GATTTCAAGG TGCTGCCTT TAAAGGTGAT	900
	GATTGATAG TGCTTGCAAG TGAGTATCGT CAGAGTCCAG GAGCTGCTGT CCTGATGCC	960
45	GGCTGTGGCT TGAAGTTGAA GGTAGATTTC CGCCCGATCG GTTGTATGC AGGTGTTGTG	1020
	GTGGCCCCCG GCCTTGGCGC GCTCCCTGAT GTTGTGCGCT TCGCCGGCCG GCTTACCGAG	1080
50	AAGAATTGGG GCCCTGGCCC TGAGCGGGCG GAGCAGCTCC GCCTCGCTGT TAGTGATTTC	1140

5 CTCGGCAAGC TCACGAATGT AGCTCAGATG TGTGTGGATG TTGTTTCCCG TGTTTATGGG 1200
 GTTTCCCTG GACTCGTTCA TAACCTGATT GGCACTGCTAC AGGCTGTTGC TGATGGCAAG 1260
 GCACATTCAGT AAAACCAGTG CTCGA 1295

a second sequence (SEQ ID NO.5):

10 TCGAGCACTG GTTTTACTGA CTCAGTAAA TGTGCCTTGC CATCAGCAAC AGCCTGTAGC 60
 ATGCCAATCA GGTTATGAAC GAGTCCAGGG GAAACCCAT AAACACGGGA AACAAACATCC 120
 ACACACATCT GAGCTACATT CGTGAGCTTG CGGAGGAAAT CACTAACAGC GAGGCGGAGC 180
 15 TGCTCCGCC GCTCAGGGCC AGGGCCCAA TTCTTCTGG TAAGCCGGCC GGCGAAGCGC 240
 ACAACATCAG GGAGCGGCC AAGGCCGGG GCCACCACAA CACCTGCATA CAAACCGATC 300
 GGGCGGAAAT CTACCTTCAA CTTCAAGCCA CAGCCGGCGA TCAGGACAGC AGCTCCTGGA 360
 20 CTCTGACGAT ACTCACTGCA AAGCACTATC GAATCATCAC CTTAAAGGC AGCCACCTGA 420
 AAATCGCGGA AGTCATAACA GTGGTAATA ACGGCCATAT TCCAGACAGT ATTCCATAGA 480
 AGAGTGCCGG GCTCACCGGA GTGTTCTTC CAAAACCTC GCAGAGACTC CTTGGGGCC 540
 25 TGCAAGATCC ACGCAGACCT TATAAGGTGA TACAGCGGA TGAGCCACTG CGGCATCCCA 600
 CACTCCTCCA TAATAGCACA CTCTAGACCC AGAGAAAAGT TATTCTGGGT GGAGTCAAAC 660
 30 TCAGAAAAGT CATTCTCAAA CACCATGGAT GCCTTGCTG CGGCCACAGC CGCCGAGAAG 720
 ACGGTGTAT CAAAGGCATC ACCGTAAAAC ACACCTGAG GGAGCAGGGC CAGAATAGCC 780
 TTCTCAATAG CGCGAACCA AGGGCCAAAG AGGGCGAGA AGGTCTTGCT CCAGGCCGAG 840
 35 ATGCCCTGGC CCACTTTACC ATGGGCAATG GTCTCACCTG TGGTGAACCTT GTTACAATCT 900
 TTCTGGAAGA AGGTGATCCT GGACACGTCA CGGTTGAAA GATCAAGCTC AAGGACGGCG 960
 40 GAGCCATCCT GGCCCTTCTC GACCATGCC TCCACTAGCT CGTACAATTG ACAAGTTGTA 1020
 ACCTGTACGG GGCCAATGGC CGGGATAAAA CGGGCAGAG AGTCCGAAC ATCAGAGTGG 1080
 GAAGCATTGT AGAGCTTGT GCGACCGCCG TAGGGCCCA CGAGTGTGGA CAGCACGGCC 1140
 45 TTGCGCTGGC TCGGGCGGC CATGCGGAG TGCACAATGT CTGTTAACCTT AAATGTTACG 1200
 ACACTATCAC AGGTGGTGAG CTCCCTGGGC AGGTAGAGAA GGCCCTGTTC GAGCTCGGGG 1260
 50 CAGGGTGGTA GAACAGCTGC AACAGGGACA GGTCT 1295

a third sequence (SEQ ID NO.6):

55 AGGCAGACCA CATATGTGGT CGATGCC ATGGAGGCC ATCAGTTTAT TAAGGCTCCT 57
 GGCATCACTA CTGCTATTGA GCAGGCTGCT CTAGCAGCGG CCAACTCTGC CCTGGCGAAT 117

	GCTGTGGTAG TTAGGCCTT TCTCTCTAC CAGCAGATTG AGATCCTCAT TAACCTAATG	177
5	CAACCTCGCC AGCTTGTGAGCTT CCGCCCCGAG GTTTCTGGA ATCATCCCAT CCAGCGTGTC	237
	ATCCATAACG AGCTGGAGCT TTACTGCCGC GCCCGCTCCG GCCGCTGTCT TGAAATTGGC	297
	GCCCATCCCC GCTCAATAAA TGATAATCCT AATGTGGTCC ACCGCTGCTT CCTCCGCCCT	357
10	GTTGGCGTG ATGTTCAGCG CTGGTATACT GCTCCCACTC GCAGGGCCGGC TGCTAATTGC	417
	CGGCCTTCCG CGCTGCGCGG GCTTCCCGCT GCTGACCGCA CTTACTGCCT CGACGGGTTT	477
15	TCTGGCTGTA ACTTTCCCGC CGAGACTGGC ATCGCCCTCT ACTCCCTCA TGATATGTCA	537
	CCATCTGATG TCGCCGAGGC CATGTTCCGC CATGGTATGA CGCGGCTCTA TGCCGCCCTC	597
	CATCTTCCGC CTGAGGTCT GCTGCCCTG GGCACATATC GCACCGCATC GTATTTGCTA	657
20	ATTCACTGACG GTAGGGCGGT TGTGGTACG TATGAGGGTG ATACTAGTGC TGGTTACAAC	717
	CACGATGTCT CCAACTTGCG CTCCTGGATT AGAACCAACCA AGGTTACCGG AGACCATCCC	777
25	CTCGTTATCG AGCGGGTTAG GGCCATTGGC TGCCACTTTG TTCTCTTGCT CACGGCAGCC	837
	CCGGAGCCAT CACCTATGCC TTATGTTCT TACCCCCGGT CTACCGAGGT CTATGTCCGA	897
	TCGATCTTCG GCCCGGGTGG CACCCCTCC TTATCCCAA CCTCATGCTC CACTAAGTCG	957
30	ACCTTCCATG CTGTCCCTGC CCATATTGG GACCGCTTA TGCTGTTGG GGCCACCTTG	1017
	GATGACCAAG CCTTTTGCTG CTCCCGTTA ATGACCTACC TTCGCGGCAT TAGCTACAAG	1077
	GTCACTGTTG GTACCCCTGT GGCTAATGAA GGCTGGAATG CCTCTGAGGA CGCCCTCACA	1137
35	GCTGTTATCA CTGCCGCCTA CCTTACCAATT TGCCACCAGC GGTATCTCCG CACCCAGGCT	1197
	ATATCCAAGG GGATGCGTCG TCTGGAACGG GAGCATGCC AGAAGTTAT AACACGCC	1257
40	TACAGCTGGC TCTTCGAGAA GTCCGGCCGT GATTACATCC CTGGCCGTCA GTTGGAGTTC	1317
	TACGCCAGT GCAGGGCGCTG GCTCTCCGCC GGCTTCATC TTGATCCACG GGTGTTGGTT	1377
45	TTTGACGAGT CGGCCCCCTG CCATTGTAGG ACCCGCGATCC GTAAGGCAGCT CTCAAAGTTT	1437
	TGCTGCTTCA TGAAGTGGCT TGGTCAGGAG TGACCTGCT TCCTTCAGCC TGCGAGGGC	1497
	GCCGTCGGCG ACCAGGGTCA TGATAATGAA GCCTATGAGG GGTCCGATGT TGACCCGTCT	1557
50	GAGTCCGCCA TTAGTGACAT ATCTGGGTCC TATGTCGTCC CTGGCACTGC CCTCCAACCG	1617
	CTCTACCAAGG CCCTCGATCT CCCCCGCTGAG ATTGTGGCTC GCGCGGGCCG GCTGACCGCC	1677
55	ACAGTAAAGG TCTCCAGGT CGATGGCGG ATCGATTGCG AGACCCCTCT TGGTAACAAA	1737
	ACCTTCGCA CGTCGTTCGT TGACGGGGCG GTCTTAGAGA CCAATGGCCC AGAGCGCCAC	1797

	AATCTCTCCT TCGATGCCAG TCAGAGCACT ATGGCCGCTG GCCCTTCAG TCTCACCTAT	1857
5	GCCGCCTCTG CAGCTGGGCT GGAGGTGCGC TATGTTGCTG CCGGGCTTGA CCATCGGGCG	1917
	GTTTTGCCC CCGGTGTTTC ACCCCGGTCA GCCCCGGCG AGGTTACCGC CTTCTGCTCT	1977
	GCCCTATACA GGTTAACCG TGAGGCCAG CGCCATTGCG TGATCGTAA CTTATGGTTC	2037
10	CATCCTGAGG GACTCATTGG CCTCTTCGCC CCGTTTCGC CCGGGCATGT TTGGGAGTCG	2097
	GCTAATCCAT TCTGTGGCGA GAGCACACTT TACACCCGTA CTTGGTCGGA GGTTGATGCC	2157
15	GTCTCTAGTC CAGCCCGGCC TGACTTAGGT TTTATGTCTG AGCCTTCTAT ACCTAGTAGG	2217
	GCCGCCACGC CTACCCCTGGC GGCCCCCTA CCCCCCCCCTG CACCGGACCC TTCCCCCCCCT	2277
	CCCTCTGCCC CGGCCTTGC TGAGCCGGCT TCTGGCGCTA CCGCCGGGGC CCCGGCCATA	2337
20	ACTCACCAAGA CGGCCCCGGCA CGGCCGCCCTG CTCTTCACCT ACCCGGATGG CTCTAAGGTA	2397
	TTCGCCGGCT CGCTGTTCGA GTCGACATGC ACGTGGCTCG TTAACCGCCTC TAATGTTGAC	2457
25	CACCGCCCTG GCGGCGGGCT TTGCCATGCA TTTTACCAAA GGTACCCCGC CTCCTTTGAT	2517
	GCTGCCTCTT TTGTGATGCG CGACGGCGCG GCCGCGTACA CACTAACCCCC CCGGCCAATA	2577
	ATTCACGCTG TCGCCCCCTGA TTATAGGTTG GAACATAACC CAAAGAGGCT TGAGGCTGCT	2637
30	TATCGGGAAA CTTGCTCCCG CCTCGGCACC GCTGCATACC CGCTCCTCGG GACCGGCATA	2697
	TACCAAGGTGC CGATCGGCCCG CAGTTTGAC GCCTGGGAGC GGAACCACCG CCCCAGGGAT	2757
35	GAGTTGTACC TTCTTGAGCT TGCTGCCAGA TGGTTTGAGG CCAATAGGCC GACCCGCCCG	2817
	ACTCTCACTA TAACTGAGGA TGTTGCACGG ACAGCGAATC TGCCATCGA GCTTGACTCA	2877
	GCCACAGATG TCGGCCGGGC CTGTGCCGGC TGTCGGGTCA CCCCCGGCGT TGTCAGTAC	2937
40	CAGTTTACTG CAGGTGTGCC TGGATCCGGC AAGTCCCGCT CTATCACCCA AGCCGATGTG	2997
	GACGTTGTGCG TGGTCCCGAC GCGTGAGTTG CGTAATGCCT GGCGCCGTCG CGGCTTTGCT	3057
45	GCTTTACCC CGCATACTGC CGCCAGAGTC ACCCAGGGGC GCCGGGTTGT CATTGATGAG	3117
	GCTCCATCCC TCCCCCTCA CCTGCTGCTG CTCCACATGC AGCGGGCCGC CACCGTCCAC	3177
	CTTCTTGCG ACCCGAACCA GATCCCAGCC ATCGACTTTG AGCACGCTGG GCTCGTCCCC	3237
50	GCCATCAGGC CCGACTTAGG CCCCACCTCC TGGTGGCATG TTACCCATCG CTGGCCTGCG	3297
	GATGTATGCG AGCTCATCCG TGGTGCATAC CCCATGATCC AGACCACTAG CGGGGTTCTC	3357
55	CGTTCGTTGT TCTGGGGTGA GCCTGCCGTC GGGCAGAAAC TAGTGTTCAC CCAGGCGGCC	3417
	AAGCCCGCCA ACCCCGGCTC AGTGACGGTC CACGAGGCGC AGGGCGCTAC CTACACGGAG	3477

	ACCACTATTA TTGCCACAGC AGATGCCCGG GGCCTTATTG AGTCGTCTCG GGCTCATGCC	3537
5	ATTGTTGCTC TGACGCGCCA CACTGAGAAG TGCGTCATCA TTGACGCACC AGGCCTGCTT	3597
	CGCGAGGTGG GCATCTCCGA TGCAATCGTT AATAACTTTT TCCTCGCTGG TGGCGAAATT	3657
	GGTCACCAGC GCCCATCAGT TATTCCCCGT GGCAACCCGT ACGCCAATGT TGACACCCGT	3717
10	GCTGCCTTCC CGCCGTCTTG CCAGATTAGT GCCTTCCATC AGTTGGCTGA GGAGCTTGGC	3777
	CACAGACCTG TCCCTGTTGC AGCTGTTCTA CCACCCGTGCC CCGAGCTCGA ACAGGGCCTT	3837
	CTCTACCTGC CCCAGGAGCT CACCACCTGT GATAGTGTGTA TAACATTGTA ATTAACAGAC	3897
15	ATTGTGCACT GCCGCATGGC CGCCCCGAGC CAGCGCAAGG CCGTGCTGTC CACACTCGTG	3957
	GGCCGCTACG GCGGTCGCAC AAAGCTCTAC AATGCTTCCC ACTCTGATGT TCGCGACTCT	4017
20	CTCGCCCGTT TTATCCCGGC CATTGGCCCC GTACAGGTTA CAACTGTGA ATTGTACGAG	4077
	CTAGTGGAGG CCATGGTCGA GAAGGGCCAG GATGGCTCCG CCGTCCTTGA GCTTGATCTT	4137
	TGCAACCGTG ACGTGTCCAG GATCACCTTC TTCCAGAAAG ATTGTAACAA GTTCACCACA	4197
25	GGTGAGACCA TTGCCCATGG TAAAGTGGC CAGGGCATCT CGGCCTGGAG CAAGACCTTC	4257
	TGCGCCCTCT TTGGCCCTTG GTTCCGCGCT ATTGAGAAGG CTATTCTGGC CCTGCTCCCT	4317
30	CAGGGTGTGT TTTACGGTGA TGCCCTTGAT GACACCGTCT TCTCGGCAGC TGTGGCCGCA	4377
	GCAAAGGCAT CCATGGTGTT TGAGAATGAC TTTCTGAGT TTGACTCCAC CCAGAATAAC	4437
	TTTCTCTGG GTCTAGAGTG TGCTATTATG GAGGAGTGTG GGATGCCGCA GTGGCTCATC	4497
35	CGCCTGTATC ACCTTATAAG GTCTGCGTGG ATCTTGCAGG CCCCCGAAGGA GTCTCTGCGA	4557
	GGGTTTTGGA AGAAACACTC CGGTGAGCCC GGCACCTTTC TATGGAATAC TGTCTGGAAT	4617
40	ATGGCCGTTA TTACCCACTG TTATGACTTC CGCGATTTTC AGGTGGCTGC CTTAAAGGT	4677
	GATGATTGCA TAGTGCTTTG CAGTGAGTAT CGTCAGAGTC CAGGAGCTGC TGTCTGATC	4737
	GCCGGCTGTG GCTTGAAGTT GAAGGTAGAT TTCCGCCGA TCGGTTGTA TGCAGGTGTT	4797
45	GTGGTGGCCC CGGGCCTTGG CGCGCTCCCT GATGTTGTGC GCTTCGCCGG CGGGCTTACC	4857
	GAGAAGAATT GGGGCCCTGG CCCTGAGCGG GCGGAGCAGC TCCGCCTCGC TGTTAGTGAT	4917
50	TTCCCTCGCA AGCTCACGAA TGTAGCTCAG ATGTGTGTGG ATGTTGTTTC CCGTGTTTAT	4977
	GGGGTTTCCC CTGGACTCGT TCATAACCTG ATTGGCATGC TACAGGCTGT TGCTGATGGC	5037
	AAGGCACATT TCACTGAGTC AGTAAAACCA GTGCTGACT TGACAAATTC AATCTGTGT	5097
55	CGGGTGGAAT GA ATAACATGTC TTTGCTGCG CCCATGGGTT CGCGACCATG	5149

	CGCCCTCGGC CTATTTGTT GCTGCTCTC ATGTTTTGC CTATGCTGCC CGCGCCACCG	5209
5	CCCGGTCAAGC CGTCTGGCCG CCGTCGTGGG CGGCGCAGCG GCGGTTCCGG CGGTGGTTTC	5269
	TGGGGTGACC GGGTTGATTC TCAGCCCTTC GCAATCCCCT ATATTCATCC AACCAACCCC	5329
	TTCGCCCCCG ATGTCACCGC TGCGGCCGG GCTGGACCTC GTGTTGCCA ACCCGCCCCGA	5389
10	CCACTCGGCT CCGCTTGGCG TGACCAGGCC CAGCGCCCCG CCGTTGCCTC ACGTCGTAGA	5449
	CCTACCACAG CTGGGGCCGC GCCGCTAA CCGCGGTGCG TCCGGCCCAT GACACCCCGC	5507
15	CAGTGCCTGA TGTCGACTCC CGCGGCCCA TCTTGCGCCG GCAGTATAAC CTATCAACAT	5567
	CTCCCCTTAC CTCTTCCGTG GCCACCGGCA CTAACCTGGT TCTTTATGCC GCCCCCTTTA	5627
	GTCCGCTTTT ACCCCTTCAG GACGGCACCA ATACCCATAT AATGGCCACG GAAGCTTCTA	5687
20	ATTATGCCCA GTACCGGGTT GCCCGTGCCA CAATCCGTTA CCGCCCCGTG GTCCCCAATG	5747
	CTGTCGGCGG TTACGCCATC TCCATCTCAT TCTGCCACA GACCACCACC ACCCCGACGT	5807
25	CCGTTGATAT GAATTCAATA ACCTCGACGG ATGTTCGTAT TTTAGTCCAG CCCGGCATAG	5867
	CCTCTGAGCT TGTGATCCA AGTGAGCGCC TACACTATCG TAACCAAGGC TGGCGCTCCG	5927
	TCGAGACCTC TGGGGTGGCT GAGGAGGAGG CTACCTCTGG TCTTGTATG CTTTGCTAC	5987
30	ATGGCTCACT CGTAAATTCC TATACTAATA CACCCCTATAC CGGTGCCCTC GGGCTGTTGG	6047
	ACTTTGCCCT TGAGCTTGAG TTTCGCAACC TTACCCCCGG TAACACCAAT ACGCGGGTCT	6107
	CCCGTTATTTC CAGCACTGCT CGCCACCGCC TTCTGCCGG TGCGGACGGG ACTGCCGAGC	6167
35	TCACCAACAC GGCTGCTACC CGCTTTATGA AGGACCTCTA TTTTACTAGT ACTAATGGTG	6227
	TCGGTGAGAT CGGCCGCGGG ATAGCCCTCA CCCTGTTCAA CCTGCTGAC ACTCTGCTTG	6287
40	GCGGCCTGCC GACAGAATTG ATTCGTCGG CTGGTGGCCA GCTGTTCTAC TCCCGTCCCG	6347
	TTGTCTCAGC CAATGGCGAG CCGACTGTTA AGTTGTATAC ATCTGTAGAG AATGCTCAGC	6407
	AGGATAAGGG TATTGCAATC CCGCATGACA TTGACCTCGG AGAATCTCGT GTGGTTATTTC	6467
45	AGGATTATGA TAACCAACAT GAACAAGATC GGCGACGCC TTCTCCAGCC CCATCGCGCC	6527
	CTTCTCTGT CCTTCGAGCT AATGATGTGC TTTGGCTCTC TCTCACCGCT GCCGAGTATG	6587
50	ACCAAGTCCAC TTATGGCTCT TCGACTGCC CAGTTATGT TTCTGACTCT GTGACCTTGG	6647
	TTAATGTTGC GACCGGGCGCG CAGGCCGTTG CCCGGTCGCT CGATTGGACC AAGGTCACAC	6707
55	TTGACGGTCG CCCCCCTCTCC ACCATCCAGC AGTACTCGAA GACCTTCTTT GTCTGCCGC	6767
	TCCCGGGTAA GCTCTTTTC TGGGAGGCAAG GCACAACTAA AGCCGGGTAC CCTTATAATT	6827

	ATAACACCAAC	TGCTAGCGAC	CAACTGCTTG	TCGAGAAATGC	CGCCGGGCAC	CGGGTCGCTA	6887
5	TTTCCACTTA	CACCACTAGC	CTGGGTGCTG	GTCCCGTCTC	CATTTCTGCG	GTTGCCGTTT	6947
	TAGCCCCCA	CTCTGCGCTA	GCATTGCTTG	AGGATACCTT	GGACTACCCCT	GCCCCGGCCC	7007
	ATACTTTGA	TGATTTCTGC	CCAGAGTGCC	GCCCCCTTGG	CCTTCAGGGC	TGCGCTTTCC	7067
10	AGTCTACTGT	CGCTGAGCTT	CAGCGCCTTA	AGATGAAGGT	GGGTAAAACCT	CGGGAGTTGT	7127
	AG	TTTATTTGCT	TGTGCCCGCC	TTCTTCTGT	TGCTTATTTC	TCATTTCTGC	7179
15	GTTCGGCGCT	CCCTGAA					7195
	a fourth sequence (SEQ ID NO.10):						
	GCCATGGAGG	CCCACCAAGTT	CATTAAGGCT	CCTGGCATCA	CTACTGCTAT	TGAGCAAGCA	60
20	GCTCTAGCAG	CGGCCAACTC	CGCCCTTGC	AATGCTGTGG	TGGTCCGGCC	TTTCCTTCC	120
	CATCAGCAGG	TTGAGATCCT	TATAAATCTC	ATGCAACCTC	GGCAGCTGGT	GTTTCGTCC	180
	GAGGTTTTT	GGAATCACCC	GATTCAACGT	GTTATACATA	ATGAGCTTGA	GCAGTATTGC	240
25	CGTGCTCGCT	CGGGTCGCTG	CCTTGAGATT	GGAGCCCACC	CACGCTCCAT	TAATGATAAT	300
	CCTAATGTCC	TCCATCGCTG	CTTTCTCCAC	CCCGTCGGCC	GGGATGTTCA	GCGCTGGTAC	360
	ACAGCCCCGA	CTAGGGGACC	TGCGGCGAAC	TGTCGCCGCT	CGGCACCTCG	TGGTCTGCCA	420
30	CCAGCCGACC	GCACTTACTG	TTTGATGGC	TTTGCCTGGT	GCCGTTTGC	CGCCGAGACT	480
	GGTGTGGCTC	TCTATTCTCT	CCATGACTTG	CAGCCGGCTG	ATGTTGCCGA	GGCGATGGCT	540
35	CGCCACGGCA	TGACCCGCCT	TTATGCAGCT	TTCCACTTGC	CTCCAGAGGT	GCTCTGCCT	600
	CCTGGCACCT	ACCGGAACATC	ATCCTACTTG	CTGATCCACG	ATGGTAAGCG	CGCGGTTGTC	660
	ACTTATGAGG	GTGACACTAG	CGCCGGTTAC	AATCATGATG	TTGCCACCCCT	CCGCACATGG	720
40	ATCAGGACAA	CTAAGGTTGT	GGGTGAACAC	CCTTGGTGA	TCGAGCGGGT	GCGGGGTATT	780
	GGCTGTCACT	TTGTGTTGTT	GATCACTGCG	GCCCCTGAGC	CCTCCCCGAT	GCCCTACGTT	840
45	CCTTACCCGC	GTTCGACGGA	GGTCTATGTC	CGGTCTATCT	TTGGGCCCGG	CGGGTCCCCG	900
	TCGCTGTTCC	CGACCGCTTG	TGCTGTCAAG	TCCACTTTTC	ACGCCGTCCC	CACGCACATC	960
	TGGGACCGTC	TCATGCTCTT	TGGGCCACC	CTCGACGACC	AGGCCTTTG	CTGCTCCAGG	1020
50	CTTATGACGT	ACCTTCGTGG	CATTAGCTAT	AAGGTAACGT	TGGGTGCCCT	GGTCGCTAAT	1080
	GAAGGCTGGA	ATGCCACCGA	GGATGCGCTC	ACTGCAGTTA	TTACGGCGGC	TTACCTCACA	1140
55	ATATGTCATC	AGCGTTATTTC	GCGGACCCAG	GCGATTCTA	AGGGCATGCG	CCGGCTTGAG	1200

	CTTGAACATG CTCAGAAATT TATTCACGC CTCTACAGCT GGCTATTGA GAAGTCAGGT	1260
	CGTGATTACA TCCCAGGCCG CCAGCTGCAG TTCTACGCTC AGTGCCGCCG CTGGTTATCT	1320
5	GCCGGGTTCC ATCTCGACCC CCGCACCTA GTTTTGATG AGTCAGTGCC TTGTAGCTGC	1380
	CGAACACCA TCCGGCGGAT CGCTGGAAA TTTTGTGTT TTATGAAGTG GCTCGGTAG	1440
10	GAGTGTCTT GTTTCTCCA GCCCGCCGAG GGGCTGGCGG GCGACCAAGG TCATGACAAT	1500
	GAGGCCTATG AAGGCTCTGA TGTTGATACT GCTGAGCCTG CCACCCCTAGA CATTACAGGC	1560
	TCATACATCG TGGATGGTCG GTCTCTGCAA ACTGTCTATC AAGCTCTCGA CCTGCCAGCT	1620
15	GACCTGGTAG CTCGCGCAGC CCGACTGTCT GCTACAGTTA CTGTTACTGA AACCTCTGGC	1680
	CGTCTGGATT GCCAAACAAT GTCGGCAAT AAGACTTTTC TCACTACCTT TGTTGATGGG	1740
20	GCACGCCCTTG AGGTTAACGG GCCTGAGCAG CTTAACCTCT CTTTGACAG CCAGCAGTGT	1800
	AGTATGGCAG CCGGCCCCGT TTGCCTCACC TATGCTGCCG TAGATGGCGG GCTGGAAGTT	1860
	CATTTTCCA CCGCTGGCCT CGAGAGCCGT GTTGTGTTCC CCCCTGGTAA TGCCCCGACT	1920
25	GCCCCGCCGA GTGAGGTAC CGCCTCTGC TCAGCTCTT ATAGGCACAA CCGGCAGAGC	1980
	CAGCGCCAGT CGGTTATTGG TAGTTGTGG CTGCACCTG AAGGTTTGCT CGGCCTGTC	2040
30	CCGCCCTTTT CACCCGGCA TGAGTGGCGG TCTGCTAAC CATTTGCGG CGAGAGCACG	2100
	CTCTACACCC GCACTTGGTC CACAATTACA GACACACCCCT TAACTGTCGG GCTAATTCC	2160
	GGTCAATTGG ATGCTGCTCC CCACTGGGG GGGCACCTG CTACTGCCAC AGGCCCTGCT	2220
35	GTAGGCTCGT CTGACTCTCC AGACCCGTAC CCGCTACCTG ATGTTACAGA TGGCTCACGC	2280
	CCCTCTGGGG CCCGTCCGGC TGGCCCCAAC CGGAATGGCG TTCCGCAGCG CCGCTTACTA	2340
40	CACACCTACC CTGACGGCGC TAAGATCTAT GTCGGCTCCA TTTTGAGTC TGAGTGCACC	2400
	TGGCTTGTC ACGCATCTAA CGCCGGCAC CGCCCTGGTG GCGGGCTTG TCATGCTTT	2460
	TTTCAGCGTT ACCCTGATTC GTTGACGCC ACCAAGTTG TGATGCGTGA TGGTCTTGCC	2520
45	GCGTATAACCC TTACACCCCG GCCGATCATT CATGCGGTGG CCCCCGACTA TCGATTGGAA	2580
	CATAACCCCA AGAGGCTCGA GGCTGCCTAC CGCGAGACTT GCGCCCGCCG AGGCACTGCT	2640
50	GCCTATCCAC TCTTAGGCAC TGGCATTAC CAGGTGCCTG TTAGTTGAG TTTTGATGCC	2700
	TGGGAGCGGA ACCACCGCCC GTTGACGAG CTTACCTAA CAGAGCTGGC GGCTCGGTGG	2760
	TTTGAATCCA ACCGCCCCGG TCAGCCCACG TTGAACATAA CTGAGGATAC CGCCCGTGC	2820
55	GCCAACCTGG CCCTGGAGCT TGACTCCGGG AGTGAAGTAG GCCGCGCATG TGCCGGGTGT	2880

	AAAGTCGAGC CTGGCGTTGT GCGGTATCAG TTTACAGCCG GTGTCCCCGG CTCTGGCAAG	2940
	TCAAAGTCG TGCAACAGGC GGATGTGGAT GTTGTGTTG TGCCCACTCG CGAGCTTCGG	3000
5	AACGCTTGGC GGCGCCGGGG CTTTGGGCA TTCACTCCGC ACACTGCGGC CCGTGTCACT	3060
	AGCGGCCGTA GGGTTGTAT TGATGAGGCC CCTTCGCTCC CCCCACACTT GCTGTTTA	3120
10	CATATGCAGC GTGCTGCATC TGTGCACCTC CTTGGGGACC CGAACATCAGAT CCCCGCCATA	3180
	GATTTTGAGC ACACCGGTCT GATTCCAGCA ATACGGCCGG AGTTGGTCCC GACTTCATGG	3240
	TGGCATGTCA CCCACCGTTG CCCTGCAGAT GTCTGTGAGT TAGTCCGTGG TGCTTACCT	3300
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20	GAGGCCAGG GTGCCACTTT TACCACTACA ACTATAATTG CAACTGCAGA TGCCCGTGGC	3480
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	GTTATACTTG ACTCTCCCGG CCTGTTGCGT GAGGTGGTA TCTCAGATGC CATTGTTAAT	3600
25	AATTTCTTCC TTTGGGTGG CGAGGTTGGT CACCAGAGAC CATCGGTAT TCCGCGAGGC	3660
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30	TTCCATCAGC TTGCTGAGGA GCTGGGCCAC CGGCCGGCGC CGGTGGCGGC TGTGCTACCT	3780
	CCCTGCCCTG AGCTTGAGCA GGGCCTCTC TATCTGCCAC AGGAGCTAGC CTCCTGTGAC	3840
	AGTGTGTGA CATTGAGCT AACTGACATT GTGCACTGCC GCATGGCGGC CCCTAGCCAA	3900
35	AGGAAAGCTG TTTGTCCAC GCTGGTAGGC CGGTATGGCA GACGCACAAG GCTTTATGAT	3960
	GCGGGTCACA CCGATGTCCG CGCCTCCCTT GCGCGCTTTA TTCCCACTCT CGGGCGGGTT	4020
40	ACTGCCACCA CCTGTGAAC TTTGAGCTT GTAGAGGCAG TGGTGGAGAA GGGCCAAGAC	4080
	GGTTCAGCCG TCCTCGAGTT GGATTTGTGC AGCCGAGATG TCTCCCGAT AACCTTTTC	4140
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50	TCACTATTCT CTGCTGCCGT GGCTGGCGCC AGCCATGCCA TGGTGGTGA AAATGATTT	4380
	TCTGAGTTG ACTCGACTCA GAATAACTTT TCCCTAGGTC TTGAGTGCAG CATTATGGAA	4440
	GAGTGTGGTA TGCCCCAGTG GCTTGTCAAG TTGTACCATG CCGTCCGGTC GGCAGTGGATC	4500
55	CTGCAGGCC CAAAAGAGTC TTTGAGAGGG TTCTGGAAGA AGCATTCTGG TGAGCCGGGC	4560

AGCTTGCTCT GGAATACGGT GTGGAACATG GCAATCATTG CCCATTGCTA TGAGTTCCGG 4620
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 5 CAGAGCCCAG GCGCCGGTTC GCTTATAGCA GGCTGTGGTT TGAAGTTGAA GGCTGACTTC 4740
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 10 GTCGTTCGAT TCGCCGGACG GCTTCGGAG AAGAACTGGG GGCTGATCC GGAGCAGGCA 4860
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 15 GGCATGCTCC AGACTATTGG TGATGGTAAG GCGCATTAA CAGAGTCTGT TAAGCCTATA 5040
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 40 AACCACAACC CCTACATCTG TTGACATGAA TTCCATTACT TCCACTGATG TCAGGATTCT 5820
 TGTTCAACCT GGCAAGCAT CTGAATTGGT CATCCAAGC GAGCGCCTTC ACTACCGCAA 5880
 45 TCAAGGTTGG CGCTCGGTTG AGACATCTGG TGTTGCTGAG GAGGAAGCCA CCTCCGGTCT 5940
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 50 TGCCCTTGGC TTACTGGACT TTGCCTTAGA GCTTGAGTTT CGCAATCTCA CCACCTGTAA 6060
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 55 CGGCCTTAAT GGGGTAGGTG AAGTCGGCCG CGGGATAGCT CTAACATTAC TTAACCTTGC 6240

1 TGACACGCTC CTCGGCGGGC TCCCCACAGA ATTAATTCG TCGGCTGGCG GGCAACTGTT 6300
 2 TTATTCCCGC CCGGTTGTCT CAGCCAATGG CGAGCCAACC GTGAAGCTCT ATACATCAGT 6360
 3 5 GGAGAATGCT CAGCAGGATA AGGGTGTTC TATCCCCAC GATATCGATC TTGGTGATTC 6420
 4 GCGTGTGGTC ATTCAGGATT ATGACAACCA GCATGAGCAG GATCGGCCA CCCCCTCGCC 6480
 5 10 TCGGCCATCT CGGCCTTTT CTGTTCTCG AGCAAATGAT GTACTTTGGC TGTCCCTCAC 6540
 6 TGCAGCCGAG TATGACCAGT CCACTTACGG GTCGTCAACT GGCCCGGTTT ATATCTCGGA 6600
 7 CAGCGTGACT TTGGTGAATG TTGCGACTGG CGCGCAGGCC GTAGCCCGAT CGCTTGACTG 6660
 8 15 GTCCAAAGTC ACCCTCGACG GGCGGCCCT CCCGACTGTT GAGCAATATT CCAAGACATT 6720
 9 CTTTGTGCTC CCCCTTCGTG GCAAGCTCTC CTTTGGGAG GCCGGCACAA CAAAAGCAGG 6780
 10 TTATCCTTAT AATTATAATA CTACTGCTAG TGACCAAGATT CTGATTGAAA ATGCTGCCG 6840
 11 20 CCATCGGGTC GCCATTTCAA CCTATACCAC CAGGCTTGGG GCCGGTCCGG TCGCCATTTC 6900
 12 TCGGGCCGCG GTTTGGCTC CACGCTCCGC CCTGGCTCTG CTGGAGGATA CTTTGATTA 6960
 13 25 TCCGGGGCGG GCGCACACAT TTGATGACTT CTGCCCTGAA TGCCGCGCTT TAGGCCTCCA 7020
 14 GGGTTGTGCT TTCCAGTCAA CTGTCGCTGA GCTCCAGGCC CTTAAAGTTA AGGTGGGTA 7080
 15 AACTCGGGAG TTGTAGTTA TTTGGCTGTG CCCACCTACT TATATCTGCT GATTTCTTT 7140
 16 30 ATTTCTTTT TCTCGGTCCC GCGCTCCCTG A 7171
 17 or a fifth sequence (SEQ ID NO.12):
 18 35 CGGGCCCCGT ACAGGTCACA ACCTGTGAGT TGTACGAGCT AGTGGAGGCC ATGGTCGAGA 60
 19 AAGGCCAGGA TGGCTCCGCC GTCCCTGAGC TCGATCTCTG CAACCGTGAC GTGTCCAGGA 120
 20 TCACCTTTT CCAGAAAGAT TGCAATAAGT TCACACGGG AGAGACCATC GCCCATGGTA 180
 21 40 AAGTGGGCCA GGGCATTTCG GCCTGGAGTA AGACCTCTG TGCCCTTTG GGCCCTGGT 240
 22 TCCGTGCTAT TGAGAAGGCT ATTCTGGCCC TGCTCCCTCA GGGTGTGTTT TATGGGGATG 300
 23 45 CCTTGATGA CACCGTCTTC TCGGCGCGTG TGGCCGCAGC AAAGGCGTCC ATGGTGTGTT 360
 24 AGAATGACTT TTCTGAGTTT GACTCCACCC AGAATAATT TTCCCTGGGC CTAGAGTGTG 420
 25 CTATTATGGA GAAGTGTGGG ATGCCGAAGT GGCTCATCCG CTTGTACAC CTTATAAGGT 480
 26 50 CTGCGTGGAT CCTGCAGGCC CCGAAGGAGT CCCTGCGAGG GTGTTGGAAG AAACACTCCG 540
 27 GTGAGCCCGG CACTCTTCTA TGGAATACTG TCTGGAACAT GGCGTTATC ACCCATTGTT 600
 28 ACGATTCCG CGATTTGCAG GTGGCTGCCT TTAAAGGTGA TGATTGATA GTGCTTTGCA 660
 29 55 GTGAGTACCG TCAGAGTCCA GGGGCTGCTG TCCTGATTGC TGGCTGTGGC TTAAAGCTGA 720

5
AGGTGGGTTT CCGTCCGATT GGTTTGATG CAGGTGTTGT GGTGACCCCCC GGCCCTGGCG 780
CGCTTCCCGA CGTCGTGCGC TTGTCGGCC GGCTTACTGA GAAGAATTGG GGCCCTGGCC 840
CTGAGCGGGC GGAGCAGCTC CGCCTTGCTG TGCG 874

or a sequence complementary thereto.

10 14. A kit comprising, in a container or separate containers, a pair of single-strand primers derived from nonhomologous regions of opposite strands of a DNA duplex fragment derived from an enterically transmitted viral hepatitis agent whose genome
15 contains a region which is homologous to the 1.33 kb DNA EcoRI insert present in plasmid pTZKF1(ET1.1) carried in E. coli strain BB4 and having ATCC deposit no. 67717.

20 15. The kit of claim 15, which are derived from opposite strands of the EcoRI duplex insert in said plasmid.

25 16. A method for detecting the presence of an enterically transmitted nonA/nonB hepatitis viral agent in a biological sample, comprising
preparing a mixture of duplex DNA fragments derived from the sample,
denaturing the duplex fragments,
30 adding to the denatured DNA fragments, a pair of single-strand primers derived from nonhomologous regions of opposite strands of a DNA duplex fragment derived from an enterically transmitted viral hepatitis agent whose genome contains a region which is homologous to the 1.33 kb DNA EcoRI insert present in plasmid pTZKF1(ET1.1) carried in E. coli strain BB4, and having ATCC deposit no. 67717,
35 hybridizing said primers to homologous-sequence region of opposite strands of such duplex DNA

fragments derived from enterically transmitted nonA/nonB hepatitis agent,

reacting the primed fragment strands with DNA polymerase in the presence of DNA nucleotides, to form new DNA duplexes containing the primer sequences, and repeating said denaturing, adding, hybridizing and reacting steps, until a desired degree of amplification of sequences is achieved.

10 17. The method of claim 16, wherein the primers are derived from opposite strands of the EcoRI duplex insert in said plasmid.

15 18. The method of claim 16, for detecting the presence of viral agent in a sample of cultured cells infected with the agent.

20 19. A vaccine for immunizing an individual against enterically transmitted nonA/nonB hepatitis viral agent comprising, in a pharmacologically acceptable adjuvant, a recombinant protein derived from an enterically transmitted nonA/nonB viral hepatitis agent whose genome contains a region which is homologous to the 1.33 kb DNA EcoRI insert present in plasmid pTZ-RF1(ET1.1) carried in E. coli strain BB4, and having ATCC deposit no. 67717.

25 20. The vaccine of claim 19, wherein the protein is derived from the EcoRI insert in said plasmid.

30 21. A vaccine for immunizing an individual against HEV comprising, in a pharmacologically acceptable adjuvant, a protein encoded by genetic sequence 406.3-2 or 406.4-2 or a fragment thereof.

35 22. In a method of isolating an enterically transmitted nonA/nonB viral agent or a nucleic acid fragment produced by the agent, an improvement which

comprises: utilizing, as a source of said agent, bile obtained from a human or cynomolgus monkey having an active infection of enterically transmitted non-A/non-B hepatitis.

5

23. The method of claim 22, wherein the bile is obtained from an infected cynomolgus monkey.

10

24. Human polyclonal anti-serum obtained from a human immunized with a protein derived from an enterically transmitted non-A/non-B viral hepatitis agent whose genome contains a region which is homologous to the 1.33 kb DNA EcoRI insert present in plasmid pTZKF1(ET1.1) carried in E. coli strain BB4 and having ATCC deposit no. 67717.

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